



ARKANSAS DEPARTMENT OF EDUCATION LONGITUDINAL DATA SYSTEM

Project Start Date: 12/01/2005

Project End Date: 11/30/2008

Amount awarded: \$ 3,328,503

Arkansas currently has a distributed set of operational and transaction databases that support the State's and school districts' fiscal, personnel and program operations and statewide and federal reporting requirements. Each system has its own data model, data dictionary, business rules and quality assurance procedures. The district-level databases for 252 school districts are housed at the Arkansas Department of Information Systems and overseen by the Arkansas Public School Computer Network office. The Financial Management System and Student Management System are based on SunGuard Pentamotion software. From an operational perspective, these systems are generally satisfactory and data are adequate to meet reporting requirements, including those associated with No Child Left Behind; however, the value of the stored information is diminished by the considerable effort required to design and conduct cross-system analyses. Just as data cannot be readily exchanged across statewide systems, data cannot be exchanged across the districts. Each school district maintains a separate database. There is no capacity to exchange data with institutions of higher education or other States. There are minor gaps between researchers' data needs and data actually collected, which limit capability to perform certain analyses. There is an inability to link to wage reporting information to track student outcomes once they enter the workforce. The LAN/WAN connectivity with districts currently is not sufficient to support access to the data warehouse and online data analyses by district and school personnel.

The Arkansas Department of Education (ADE) plans to construct a longitudinal data system to fill gaps in its current systems and more effectively manage, analyze, disaggregate, and use individual student data to support decision making at the state, district, school, classroom and parent levels, in order to eliminate achievement gaps and improve learning of all students. Building on the existing data systems, ADE will establish an enterprise-wide data architecture and construct and deploy a data warehouse that provides for integration of the State's fiscal, student and staff data. Using its own resources, augmented by funding from the IES grant, ADE plans to develop the following project components:

- **Commitment of a unique student identifier strategy.** Arkansas' statewide system of unique student identifiers employs the use of the social security number

or an assigned unique nine-digit number. This restricts the use by researchers. In Arkansas' project, student records from the multiple operational and transactions files will be assembled in a data warehouse environment. Once records are linked, a substitute identifier can be assigned. Pre-linked records without visible social security numbers will be directly accessible to authorized users including researchers and consumers.

- **Creation of an enterprise-wide data architecture that includes a data model, data dictionary, business rules, and quality assurance procedures** The information architectures of the source systems will be unified within the context of a Cognos data warehouse environment. The Kimball-compliant design to be used will allow for modifications and enhancement to the system's data and architecture, including system expansion over time.
- **Construction and implementation of an integrated data warehouse consisting of a set of coordinated subject-oriented data marts within the context of the Cognos Education Performance Management Solution (EPMS)** The K-12 integrated warehouse architecture and services will be delivered through three Cognos products: DecisionStream, ReportNet, and PowerPlay.
- **Redevelopment or enhancement of existing operational systems** Methods for collecting data will be reviewed for timeliness and accuracy as well as for data gaps. Documentation will be updated and supplemented. The current Arkansas Professional Licensure System which is a transaction-oriented database will be replaced and designed to accommodate data requirements associated with standards of evaluation and highly qualified teacher analyses.
- **Development of an Electronic Transcript System** Arkansas will design, construct, and implement a web-based repository of student K-20 transcripts and methods for electronic exchange of transcripts across districts, between states, and between K-12 and institutions of higher education using the TRIAND WEST solution for electronic exchange of transcripts.
- **Development of a Business Intelligence tool set that delivers reports, tables, charts or graphs, and spreadsheets that will allow consumers to gain access to the information they need** The BI tools will be based on Cognos ReportNet for reporting and Cognos PowerPlay for online analysis.
- **Development of an Information Distribution and Training Program** The plan will ensure that data resources and their uses are made widely known and are used to their fullest potential. The program will combine instructor-led sessions and online guidance. An online learning community will be fostered.
- **Development of a comprehensive data quality assurance program, including a provision for extensive system testing** The educational data quality program will be modeled on guidelines issued by the U. S. Office of Management and Budget and the information quality goals of the U. S. Department of Education as presented in the department's strategic plan.
- **Establishment of methods for documenting and disseminating lessons learned and best practices with educational leaders, researchers and the community at large**

The project will be guided by a permanent Arkansas Department of Education Information Systems Planning Group (EISPG), which currently includes leaders both in Arkansas Department of Education (ADE) and the Arkansas Department of Information Systems (DIS). The EISPG will be broadened to include parent, teacher and administrator representatives. The project, which is already under way, is deeply embedded in the ongoing activities of ADE and DIS, which will ensure its sustainability following the federal funding period. Arkansas will partner with the State Educational Technology Directors Association (SETDA) for dissemination and networking services (DANS).

The grant funds will allow Arkansas to accelerate the pace and expand the scope of its work. The grant funds will allow for the addition of new elements to the current planned work including development of a comprehensive enterprise data model; development of a comprehensive data quality assurance plan; acquisition of the TRIAND electronic transcripts component of its planned architecture; distribution and use of warehouse data by parents, teachers, administrators and researchers; and the evaluation of the initiative and its impact on student achievement.